REMARKS

Claims 1-57 are pending in this application. Applieant respectfully notes that although the examiner states claims 1-57 are rejected, applicant caneelled claims 23-27 and 35 in its amendment filed June 26, 2006. Therefore, claims 1-22, 28-34 and 36-57 are rejected.

Claim 18 is amended. Reconsideration of the claims is requested in light of the following remarks.

The rejections are traversed.

Claim Amendments

Claim 18 has been amended. Support for the amendment can be found in the application as filed, for example, on pages 17-21. No new matter has been added.

Official notice

The Examiner cited Dunne as a switch coupled to a driving circuit, a sensing circuit, and LEDs to switch the LEDs from a sense mode to an emit mode. In Dunne, as described below, the sensing portion does not use the emitting LED. Accordingly, there is no sensing circuit coupled to the switch as argued by the Examiner. Furthermore, Dunne only gives an example of reverse biasing an LED for the purpose of overcoming an uncertain turn on time in an avalanche transistor. Dunne does not teach that it is well known in the art to switch any LED from an emit mode to a sense mode.

The Applicant traverses the Examiners assertion of official notice. Although the Applicant agrees that some diodes can be reversed-biased to function as photodetectors, the fact that a diode can be reverse biased does not necessarily disclose or suggest switching circuitry to switch an LED between a sense mode to an emit mode.

Claim Rejections – 35 USC § 103

Claims 1-6, 9-14 and 40-49 are rejected as being unpatentable over Stam et al. (U.S. Patent Application Publication No. 2002/0047624) in view of Cok et al. (U.S. Patent No. 6,320,325).

The Examiner stated indicated that there was no speeific disclosure of a switch coupled with a driving circuit, a sensing circuit, and LEDs to switch the LEDs from a sense mode to an

emit mode. The Examiner cited Dunne as an example of a driving circuit, a sensing circuit, and LEDs to switch the LEDs from a sense mode to an emit mode.

A. No reason to add any switch as described by Dunne

The Examiner is reminded that the United States Supreme Court held that "Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning." KSR Int'l Co. v. Teleflex, Inc., 550 U.S. ____ (2007).

First, the reverse biasing in Dunne is used to overcome the unpredictable 2-15 nanosecond delay in an avalanche transistor. Dunne, col. 6, ll. 43-49. This is needed in Dunne because the pulse durations are on the order of 50 nanoseconds or less. Dunne, col. 2, ll. 20-24. 2-15 nanosecond variability over a 50 nanosecond pulse time is 4-30%. Hence, Dunne provides reverse bias to turn on the LED only after the avalanche transistor exits its unpredictable turn-on region.

In contrast, the pulse times in Stam and Cok are likely on the order of 65 microseconds or 65000 nanoseconds. (Assuming for the sake of argument that a display device from Stam and Cok has a refresh rate of 60 Hz, each pixel would be turned on every $1/60^{th}$ of a second. Assuming that a PWM technique from Stam (¶ 38) is used and an 8 bit single color resolution is used as described in Cok (col. 4, ll. 37-39), then the shortest time an LED will be turned on to establish the smallest intensity will be $1/256^{th}$ of $1/60^{th}$ of a second, or approximately 65 microseconds.) A 2-15 nanosecond delay corresponds to a 0.003 – 0.02 % variation in the smallest pulse width driving an LED.

Accordingly, there is no reason to use any switching of reverse biasing as described in Dunne. The additional circuitry to prevent a 0.003 – 0.02 % variation in the smallest pulse width does not have a rational underpinning as required by the U.S. Supreme Court. As a result, the combination of Stam, Cok, and Dunne does not teach or suggest each and every element of claims 1, 46, 48, and dependent claims 2-14, 40-45, 47, and 49.

B. Stam, Cok, and Dunne all describe dedicated detectors, not an emitting and sensing LED

Second, in both Stam and Cok, a dedicated detector is described for detecting light for whatever purpose. Neither reference describes an LED that can be switched from a sense mode

into an emit mode. Stam only mentions that one of LED 101, 102, or 103 can be reverse biased as a detector 106. Stam, ¶36.

In Cok, the representative pixel 20 does not sense light incident on it. Incident light is sensed by the collocated photodiode 21. As a result, there is no need to reverse bias the photodiode 20.

Dunne reinforces the dedicated detector circuit structure of Stam and Cok. In Dunne, a dedicated receive section 212 receives pulses from the transmit section 210. Dunne, col. 11, ll. 15-19, and FIG. 7. Dunne does not describe using the reverse-biased pulse-generating LED as a detector.

As a result, the combination of Stam, Cok, and Dunne does not teach or suggest each and every element of claims 1, 46, 48, and dependent claims 2-14, 40-45, 47, and 49.

C. The references do not describe an LED the can adjust its brightness in the emit mode in response to the amount of light sensed by that LED in the sense mode

Claim 11 recites that "each LED can adjust its brightness in the emit mode in response to the amount of light sensed by that LED in the sense mode." In contrast, in Stam, an LED used as a detector is used to detect light of other similar color LEDs. Stam, ¶36.

Stam does describe that a detector 106 can be used to measure ambient light. Stam, ¶31. However, the ambient light is measured while other LEDs are not emitting. Stam, ¶43. In contrast, in claim 11, a first row of LEDs are coupled to the driving circuit while a second row of LEDs are coupled to the sensing circuit. Accordingly, LEDs in the sense mode are sensed while other LEDs are being driven by the driving circuit. Thus, Stam does not describe rows of LEDs of claim 11.

As a result, the combination of Stam, Cok, and Dunne does not teach or suggest each and every element of claim 11.

D. Ogawa does not describe a position on a display panel as used in the claims

Claims 17-19 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stam et. Al. in view of Cok et al. as applied to claim 1 above, and further in view of Ogawa (U.S. Patent No. 5,572,251).

Claim 17 includes "a position circuit coupled to the sensing circuit and structured to determine a position on the display panel at which an external light source is pointing." Thus, when determined, the external light source is pointing at a position on the display panel. Parent independent claim 1 recites that "a plurality of Light Emitting Diodes (LEDs) form a display panel for displaying a digital image."

First, the laser pointer 15 of Ogawa is pointed at the screen 11, not at the projection type display unit 13. Accordingly, the laser pointer 15 pointing at the screen cannot be the external light pointing at a position on the display panel. The laser pointer 15 is not pointed at the projection type display unit 13.

Second, assuming that light point 14 is an external light source, Ogawa does not determine a position on the projection type display unit 13 at which the light point 14 is pointing. Assuming for the sake of argument that the light point 14 is pointing at something, at best, Ogawa describes where light 21 enters the optical position detecting unit 12. There is no determination of where on the projection type display unit 13 light from the light point 14 is pointing.

Claim 18 further refines claim 17 by describing that the position circuit is to "determine the position on the LEDs of the display panel at which the external light source is pointing when the external light source is pointing at at least one LED of the display panel." Thus, the light source is pointing at an LED of the display panel. It is the position on the LEDs of the display panel that is determined. At best, Ogawa determines a position on the screen 11, not a position on the projection type display unit 13.

As a result, the combination of Stam, Cok, Dunne, and Ogawa does not teach or suggest each and every element of claims 17, 18, 19 and 41.

E. Additional reference do not cure the deficiencies of Stam, Cok, and Dunne

Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stam et al. in view of Cok et al. as applied to claim 1 above, and further in view of Gu (Ikeda) et al. (U.S. Patent No. 5,566,372). Since Gu does not suggest the switch, driving circuit, and sensing circuit, the combination of Stam, Cok, Dunne, and Gu does not teach or suggest each and every element of claims 15-16, dependent from claim 1.

Claims 20-22 and 50-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stam et al. in view of Cok et al. as applied to claims 1 and 48 above, and further in view of Forrest et at. (U.S. Patent Application Publication No. 2003/0213967). Since Forrest does not suggest the switch, driving circuit, and sensing circuit, the combination of Stam, Cok, Dunne, and Forrest does not teach or suggest each and every element of claims 20-22 and 50-51, dependent from claims 1 and 48.

Claims 28, 29 and 32-35 and 55-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stam et al. in view of Mueller et al. (U.S. Patent No. 6,016,038). Claims 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stam et al. in view of Mueller et al. as applied to claim 28 above, further in view of Scozzafava et al. (U.S. Patent No. 5,073,446). Since neither Mueller and Scozzafava suggests the switch, driving circuit, and sensing circuit, the combination of Stam, Cok, Dunne, Mueller, and Scozzafava does not teach or suggest each and every element of claims 28, 29 and 30-35 and 55-57, dependent from claims 1 28, and 48.

Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stam et al. in view of Mueller et al. as applied to claim 28 above, further in view of Gu (Ikeda). Claims 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stam et al. in view of Mueller et al. as applied to claim 28 above, further in view of Ogawa. As described above, neither Gu nor Mueller cure the deficiencies of the combination of Stam, Cok, and Dunne. Accordingly the combination of Stam, Cok, Dunne, Mueller, Gu and Ogawa does not teach or suggest each and every element of claims 36-39, dependent on claim 28.

CONCLUSION

Applicant requests reconsideration in view of the foregoing remarks. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

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Respectfully submitted,

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